

CLAIMS

We claim:

1. A blood processing system, comprising:

an extracorporeal blood circuit configured to circulate blood through a blood treatment device, said extracorporeal blood circuit including a fluid circuit for conveying incoming and outgoing fluids related to a treatment operation of said blood treatment device;

a blood treatment machine configured to control respective flows of said incoming and outgoing fluids to maintain a substantial equal volume of said incoming and outgoing fluids;

said extracorporeal blood circuit including a first portion integrated, at least in part, within a first panel and a second portion integrated, at least in part, within a second panel, where said first and second portions carry said incoming and outgoing fluids;

a fluid processing cartridge orienting the first and second panels for mounting as an integrated unit on said blood treatment machine and for removal as an integrated unit from said blood processing machine.

2. A system according to claim 1, wherein said first portion handles said incoming fluid and said second portion handles said outgoing fluid.

3. A system according to claim 1, wherein said cartridge orients an entirety of said extracorporeal blood circuit.

4. A system according to claim 1, wherein said extracorporeal blood circuit includes said blood treatment device.

5. A system according to claim 4, wherein said cartridge orients an entirety of said extracorporeal blood circuit.

6. A system according to claim 1, wherein at least one of the first and second panels includes an operative region that flexes in response to an external force applied by the fluid processing machine.

7. A system according to claim 6, wherein the operative region-comprises an in-line clamping region that flexes to occlude fluid flow.

8. A system according to claim 6, wherein the operative region comprises an in-line pump tube that flexes in response to peristaltic force to pump fluid.

9. A system according to claim 1, wherein the first and second portions include in-line chambers and said blood treatment machine is configured to control said respective flows by volumetrically balance said incoming and outgoing fluids by displacing said incoming and outgoing fluids within said in-line chambers.

10. A system according to claim 1, wherein the first and second panels are flexible and the fluid processing cartridge orients the first and second flexible panels in an overlaying relationship within the blood processing machine.

11. A blood processing system, comprising:

an extracorporeal blood circuit including tubing and flexible panels, the flexible panels defining portions of said blood circuit that carry incoming and outgoing fluids entering and leaving a blood treatment device used for treating a patient;

a blood treatment machine configured to control respective flows of said incoming and outgoing fluids to maintain a substantial equality of a flow rate of said incoming and outgoing fluids;

a fluid processing cartridge orienting the first and second panels for mounting as an integrated unit on said blood treatment machine and for removal as an integrated unit from said blood processing machine.

12. A system according to claim 11, wherein said first panel handles said incoming fluid and said second panel handles said outgoing fluid.

13. A system according to claim 11, wherein said cartridge orients an entirety of said extracorporeal blood circuit.

14. A system according to claim 11, wherein said extracorporeal blood circuit includes said blood treatment device.

15. A system according to claim 14, wherein said cartridge orients an entirety of said extracorporeal blood circuit.

16. A system according to claim 11, wherein at least one of the first and second panels includes an operative region that flexes in response to an external force applied by the fluid processing machine.

17. A system according to claim 16, wherein the operative region-comprises an in-line clamping region that flexes to occlude fluid flow.

18. A system according to claim 16, wherein the operative region comprises an in-line pump tube that flexes in response to peristaltic force to pump fluid.

19. A system according to claim 11, wherein the first and second panels include in-line chambers and said blood treatment machine is configured to control said respective flows by volumetrically balance said incoming and outgoing fluids by displacing said incoming and outgoing fluids within said in-line chambers.

20. A blood processing system, comprising:

an extracorporeal blood circuit configured to circulate blood through a blood treatment device and at least one other fluid related to a treatment operation of said blood treatment device;

a blood treatment machine configured to control respective flows of said blood and said at least one other fluid;

said extracorporeal blood circuit including a first portion integrated, at least in part, within a first panel and a second portion integrated, at least in part, within a second panel;

a fluid processing cartridge orienting the first and second panels for mounting as an integrated unit on said blood treatment machine and for removal as an integrated unit from said blood processing machine.

21. A system as in claim 20, wherein said blood treatment machine includes a sensor adjacent at least one of said panels, said sensor being configured to detect a pressure within said panel.

22. A system as in claim 20, wherein said blood treatment machine includes recesses into which portions of at least one of said panels expands to define a chamber, said blood treatment machine being further configured to employ said at least one chamber for volumetrically balancing flows of fluid within said panels.

23. A system as in 20, wherein said at least one other fluid includes incoming and outgoing fluids used by blood treatment device, each of said panels carrying a respective one of said incoming and outgoing fluids.

24. A system as in claim 20 wherein said at least one other fluid includes incoming and outgoing fluids used by blood treatment device, each of said panels carrying a respective one of said incoming and outgoing fluids and said first panel overlies said second panel such that fluid in said first panel displaces fluid in said second panel.